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TRANSMITTAL FORM (to be used for all correspondence after Initial filing)	Application Number	10/671,842	
	Filing Date	September 25, 2003	
	First Named Inventor	Michael D. Brookshire	
	Art Unit	3677	
	Examiner Name	Reese, David C.	
Total Number of Pages in This Submission	56	Attorney Docket Number	121236.00003 CIP

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s) : Michael D. Brookshire
Serial Number : 10/671,842
Date of Filing : September 25, 2003
Title : CELEBRATION DIAMOND HAVING
DOME-SHAPED CROWN WITH PAVILION
Confirmation No. : 9648
Art Unit : 3677
Examiner : Reese, David C.
USPTO Customer No. : 26707
Attorney Docket No. : 121236.00003 CIP

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant submits the following Appeal Brief under 37
C.F.R. § 41.37 appealing the Office Action from the USPTO dated
December 26, 2007.

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I. REAL PARTY IN INTEREST

OMNICE LLP, an Arizona limited liability partnership, having a principal place of business at 6900 East Camelback Road, Suite 950, Scottsdale, Arizona 85251, is the real party in interest of the present application. An assignment of all rights, title, and interest in the present application to OMNICE LLP was executed by Brookshire Diamond Designs, LLC, and recorded by the U.S. Patent and Trademark Office at reel 017789, frame 0235.

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II. RELATED APPEALS AND INTERFERENCES

This Appeal Brief is a reinstatement of the Appeal Brief filed on September 17, 2007 and is filed in accordance with the requirements of M.P.E.P. § 1204.01. Appellant currently has an appeal pending for related application number 10/613,281. There are no interferences pending related to the present application.

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III. STATUS OF CLAIMS

The present application contains 36 pending claims. Claims 1, 23, 40, and 47 are rejected as failing to comply with the written description requirement of 35 U.S.C. 112, first paragraph. Claims 1, 3-5, 7-8, 10, 13-16, 18-19, 21, 23-25, and 40-56 are rejected as being unpatentable under obvious-type double patenting in view of claim 25-44 of US patent application 10/613,281. Claims 40, 44, 47-48, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by the Diagrams for Faceting reference. Claims 41, 45-46, and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Diagrams for Faceting reference. Claims 1, 3-5, 13-16, 23-25, and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Diagrams for Faceting reference. Claims 7-8, 10, 18-9, 21, 27-28, 30, 42-43, and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Diagrams for Faceting reference.

A copy of claims 1, 3-5, 7, 8, 10, 13-16, 18-19, 21, 23-25, 27, 28, and 40-56, the claims on Appeal, is enclosed in the Claims Appendix.

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IV. STATUS OF AMENDMENTS

None.

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V. SUMMARY OF CLAIMED SUBJECT MATTER

In the present invention, a dome-shaped crown (22) is cut into the diamond rough as a plurality of rows or sets of facets (40). The rows or sets of facets have monotonically decreasing angles to form a generally curved contour from the girdle (26) to the apex of the crown. The dome-shaped crown, especially in the case of a precious gemstone, provides a fluid balance of light return from numerous angles. The dome-shaped crown allows more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation.

With respect to claim 1, the present invention is a diamond comprising a pavilion (24) having a plurality of facets (32) disposed from a girdle (26) to a culet (34), as found on page 7, lines 7-18 and page 8, line 33 through page 9, line 8 of the specification and FIG. 2. Each of the plurality of facets has a continuous flat surface extending from the girdle to the culet. An edge of a first adjoining facet contacts an edge of a second adjoining facet along a common radial boundary, see page 9, lines 9-17. A dome-shaped crown (22) is disposed above the girdle, see page 9, lines 18-25. The girdle extends no further than a widest circumference of the dome-shaped crown. The pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from at least five sets of facets (40) cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown, see page 13, lines 6-19. Each facet within the sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets, as found on page 9, line 26 through page 13, line 29. Each of the sets of facets has monotonically decreasing surface area from the girdle to the apex

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of the dome-shaped crown, see page 13, lines 6-19. The apex of the dome-shaped crown has less surface area than each facet from the sets of facets, as found on page 13, lines 20-29 of the specification.

With respect to claim 13, the present invention is a cut gemstone comprising a pavilion (24) extending from a girdle (26) to a culet (34), as found on page 7, lines 7-18 and page 8, line 33 through page 9, line 8 of the specification and FIG. 2. The girdle extends no further than a widest circumference of the crown. The pavilion extends no further than a widest circumference of the girdle. A crown (22) in the form of a symmetrical hemisphere is formed from at least five sets of facets (40) between the girdle and an apex of the crown including a first set of facets disposed above the girdle and a second set of facets disposed between the first set of facets and an apex of the crown, see page 9, lines 18-25. The first set of facets is cut at a first angle with respect to a reference line which is tangential to the apex of the crown. The second set of facets is cut at a second angle with respect to the reference line which is less than the first angle. Each facet within the first and second sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets, as found on page 9, line 26 through page 13, line 29.

With respect to claim 23, the present invention is a cut gemstone comprising a pavilion (24) having a plurality of facets (32) disposed from a girdle (26) to a culet (34), as found on page 7, lines 7-18 and page 8, line 33 through page 9, line 8 of the specification and FIG. 2. A dome-shaped crown (22) is disposed above the girdle, see page 9, lines 18-25. The girdle extends no further than a widest circumference of the dome-shaped

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crown. The pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from at least five sets of facets (40) cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. Each facet within the sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets, as found on page 9, line 26 through page 13, line 29.

With respect to claim 40, the present invention is a cut gemstone comprising a pavilion (24) having a plurality of facets (32) disposed from a girdle (26) to a culet (34), as found on page 7, lines 7-18 and page 8, line 33 through page 9, line 8 of the specification and FIG. 2. A dome-shaped crown (22) is disposed above the girdle, see page 9, lines 18-25. The girdle extends no further than a widest circumference of the dome-shaped crown. The pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from a plurality of sets of facets (40) cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. Each facet within the sets of facets is polygonal in shape with opposing corners of the polygon nested between adjacent facets, as found on page 9, line 26 through page 13, line 29.

With respect to claim 47, the present invention is a diamond comprising a pavilion (24) having a plurality of facets (32) disposed from a girdle (26) to a culet (34), as found on page 7, lines 7-18 and page 8, line 33 through page 9, line 8 of the specification and FIG. 2. A dome-shaped crown (22) is disposed above the girdle, see page 9, lines 18-25. The girdle extends no further than a widest circumference of the dome-shaped

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crown. The pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from a plurality of sets of facets (40) cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown, as found on page 9, line 26 through page 13, line 29.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 23, 40, and 47 fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph.

2. Whether claims 1, 3-5, 7-8, 10, 13-16, 18-19, 21, 23-25, and 40-56 are unpatentable under obvious-type double patenting in view of claim 25-44 of US patent application 10/613,281.

3. Whether claims 40, 44, 47-48, and 54 are anticipated by the Diagrams for Faceting reference under 35 U.S.C. § 102(b).

4. Whether claims 41, 45-46, and 49-51 are unpatentable over the Diagrams for Faceting reference under 35 U.S.C. § 103(a).

5. Whether claims 1, 3-5, 13-16, 23-25, and 55-56 are unpatentable over the Diagrams for Faceting reference under 35 U.S.C. § 103(a).

6. Whether claims 7-8, 10, 18-9, 21, 27-28, 30, 42-43, and 52-53 are unpatentable over the Diagrams for Faceting reference under 35 U.S.C. § 103(a).

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VII. ARGUMENT

A. Objection to IDS

The Office Action dated December 26, 2007 objected to the IDS. Appellant has re-transmitted the IDS in question.

B. Objection to drawings

The Office Action dated December 26, 2007 objected to the drawings under 37 C.F.R. 1.83(a). The Examiner states that the drawings do not show the apex of the dome-shaped crown as having less surface area than each facet from the sets of facets. Appellant respectfully traverses the objection. FIG. 5, in combination with paragraphs [0034]-[0036] of the specification, illustrates an apex of the dome-shaped crown as having less surface area than each facet from the sets of facets.

C. Legal standards

1. 35 U.S.C. § 112, first paragraph

The first paragraph of Section 112 provides that the specification shall contain a written description of the invention. The description requirement's purposes are to assure that the Applicant was in full possession of the claimed subject matter on the application filing date and to allow other inventors to develop and obtain patent protection for later improvements and subservient inventions that build on Applicant's teachings. The description requirement may come into play when a claim is added by an Applicant for a patent at some stage after the original filing date and the claim differs in scope from the original claims.

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To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. The written specification can use such descriptions as words, structures, figures, diagrams, formulas, etc., that fully set forth the claimed invention. Although the exact terms need not be used *in haec verba*, the specification must contain an equivalent description of the claimed subject matter. *Eiselstein v. Frank*, 52 F.3d 1035, 1038, 34 USPQ2d 1467, 1470 (Fed. Cir. 1995) ("[T]he prior application need not describe the claimed subject matter in exactly the same terms as used in the claims ..."). Thus, while there is no *in haec verba* requirement, newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure. *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1570, 39 USPQ2d 1895, 1904 (Fed. Cir. 1996) ("*ipsis verbis* disclosure is not necessary to satisfy the written description requirement of section 112. Instead, the disclosure need only reasonably convey to persons skilled in the art that the inventor had possession of the subject matter in question."); *In re Alton*, 76 F.3d 1168, 1175, 37 USPQ2d 1578, 1584 (Fed. Cir. 1996) ("If a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate written description requirement is met.").

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2. 35 U.S.C. § 102(b)

Under 35 U.S.C. 102, "a person shall be entitled to a patent unless (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States." Therefore, a claim is anticipated if every element recited in the claim can be found in a single prior publication, patent, or invention, either explicitly or inherently. See *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995). If the reference fails to suggest, either explicitly or inherently, even one limitation of the claimed invention, then the claim is not anticipated. *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1574 (Fed. Cir. 1984). To be anticipatory based on inherency, it must be clear that the missing descriptive matter is present and would be recognized by persons of ordinary skill in the art. *Continental Can Co., U.S.A. v. Monsanto Co.*, 948 F.2d 1264 (Fed. Cir. 1991).

3. 35 U.S.C. 103(a)

Section 103(a) of Title 35 provides a standard for patentability of the claimed invention. To evaluate patentability under Section 103(a), the scope and content of the prior art are to be determined, differences between the prior art and the claims at issue are to be ascertained, and the level of ordinary skill in the pertinent art resolved. *Graham v. John Deere Co.* 383 U.S. 1 (1966). In considering the legal standard

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of obviousness, certain secondary considerations such as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to in order to establish a *prima facie* case of obviousness: (i) the claimed invention must be considered as a whole; (ii) the references must be considered as a whole; (iii) the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (iv) there is a reasonable expectation of success. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986); *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In determining obviousness, the Supreme Court in *KSR Intl. Co. v. Teleflex Inc.* advocated a common sense approach. 127 S.Ct. 1727, 1741-43 (2007). Prior art is not limited to the references being applied, but includes the background knowledge of one of ordinary skill in the art. *Id.* at 1742. Where the prior art does not teach or suggest all of the claimed limitations, the invention may still be obvious where the differences between the prior art and the claimed invention would be obvious to one of ordinary skill in the art. *Id.* at 1741.

At the same time, however, a patent is not proven obvious simply because each element is, independently, shown to be in the prior art. *Id.* at 1739. The proper obviousness inquiry is "whether the improvement is more than the predictable use of

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prior art elements according to their established functions."
Id. at 1740.

D. Claims 1, 23, 40, and 47 comply with the written description requirement under 35 U.S.C. § 112, first paragraph

The Examiner rejects claims 1, 23, 40, and 47 as failing to comply with the written description requirement under 35 U.S.C. 112, first paragraph. More specifically, the Examiner states that the specification does not provide reasonably enablement for the term "curved." The Examiner interprets "curved" as a continuous bending line without angles.

Appellant traverses the rejection of claims 1, 23, 40, and 47 under 35 U.S.C 112, first paragraph. The term "curved" is clearly defined in the specification as:

FIG. 5 illustrates several rows or sets of facets cut into the diamond rough of crown 22 on gemstone 20. Not all of the eleven rows or sets of facets described above are shown in FIG. 5 to simplify the drawing. The rows or sets of facets have monotonically decreasing angles, with respect to reference line 30, to form a generally curved contour from girdle 26 to the apex of crown 22. In reality the contour occurs in a series of steps as determined by the cut angle of the facets to give crown 22 its dome shape. Facets 32 provide a generally conical-shaped pavilion 24. The dome-shaped crown 22, especially in the case of a diamond, provides a fluid balance of light return from the numerous angles.

See paragraph [0029] of the subject specification

Appellant has defined the term "curved" within the context of the invention, which is permitted under MPEP 2111.01. The curved contour occurs in a series of steps as determined by the

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cut angle of the facets to give the crown its dome shape. The dome-shaped crown provides a fluid balance of light return from numerous angles. The Examiner has chosen an arbitrary definition and applied it to the claims without consideration of the description of "curved contour" in the subject specification. The rejection under 35 U.S.C. 112, first paragraph, should be withdrawn.

E. Double patenting rejection

The Examiner rejects claims 1, 3-5, 7-8, 10, 13-16, 18-19, 21, 23-25, and 40-56 as being unpatentable under obvious-type double patenting in view of claim 25-44 of US patent application 10/613,281. In the event that one or more of claims 1, 3-5, 7, 8, 10, 13-16, 18-19, 21, 23-25, 27, 28, and 40-56 of the subject application are deemed to be allowable in this appeal, Appellant will provide a terminal disclaimer to overcome the obvious-type double patenting rejection.

F. Claims 40, 44, 47-48, and 54 are patentable over Diagrams for Faceting

1. Claims 40 and 44

The Examiner rejects claims 40 and 44 under 35 U.S.C. 102(b) as being anticipated by the Diagrams for Faceting reference. Appellant respectfully traverses the rejection and submits the following arguments in favor of reversal of the rejection and allowance of the claim.

Claim 40 recites a cut gemstone comprising a pavilion having a plurality of facets disposed from a girdle to a culet. A dome-shaped crown is disposed above the girdle. The girdle extends no further than a widest circumference of the dome-shaped

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crown and the pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. Each facet within the sets of facets is polygonal in shape with opposing corners of the polygon nested between adjacent facets.

The dome-shaped crown formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown is a fundamental distinction between the claimed invention and the prior art of record.

The Diagrams for Faceting reference generally discloses a variety of cuts for gemstones. In particular, the Examiner references the Mogul cut on page 9 of the reference. The Mogul cut has at most four rows of crown facets cut at varying angles from a reference plane tangent to a flat tabletop over the crown.

The Diagrams for Faceting reference does not teach or suggest at least the feature of the dome-shaped crown formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. The number of rows of facets must be sufficient to yield the dome-shaped crown. The Mogul cut does not address the concerns of cutting facets in a dome-shaped crown. The facet cuts made in the Mogul design would not aid one skilled in the art in making such cuts. The facet cuts needed to maximize the light penetration and reflection and thereby bring out the desired brilliance and scintillation in a dome shape must be precise.

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The Diagrams for Faceting reference discloses at most four sets of facets from the girdle to the tabletop of the crown which is insufficient to create a curved contour in accordance with a dome shape as recited in claim 40.

Moreover, the facets in the Mogul design do not extend to the apex of the crown. The Mogul facets terminate prior to the apex leaving the crown with a flat tabletop. Indeed, the Mogul design from the Diagrams for Faceting reference has a flat tabletop similar to the prior art design shown in FIG. 1 of the Appellant's application. The desired brilliance and scintillation exhibited with the claimed dome shape simply cannot be achieved with a flat tabletop crown, see paragraphs [0005]-[0008] of the Appellant's application.

In contrast, Appellant's invention provides sufficient facets to form a curved contour into a dome shape, see FIG. 5. In one embodiment, the specification discusses cutting at least eleven rows of facets to achieve the curved contour into a dome shape, see paragraphs [00027]-[00029]. The curved contour is important to the invention in that it yields a fluid balance of light return from numerous angles. It is the totality and utility of these functional aspects of the dome-shaped crown that allows more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation, see paragraph [00036].

In addition, the Diagrams for Faceting reference has no disclosure for the claimed feature that each facet within the sets of facets is polygonal in shape with opposing corners (plural) of the polygon nested between adjacent facets (plural). The opposing corners of the polygon being nested between adjacent facets can be seen in FIG. 5. The Diagrams for

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Faceting reference has triangular facets and therefore cannot have opposing corners of the polygon. Moreover, the corners (plural) of the triangular facets are not nested between adjacent facets (plural), e.g., see bottom row of Mogul cut in the Diagrams for Faceting reference. Appellant submits this claimed feature cannot physically be achieved with the triangular facets in the Diagrams for Faceting reference.

Claim 40 is believed to patentably distinguish over the Diagrams for Faceting reference. Claim 44 is believed to be in condition for allowance as it is dependent from an allowable base claim.

2. Claims 47, 48, and 54

The Examiner rejects claims 47, 48, and 54 under 35 U.S.C. 102(b) as being anticipated by the Diagrams for Faceting reference. Appellant respectfully traverses the rejection and submits the following arguments in favor of reversal of the rejection and allowance of the claim.

Claim 47 recites a diamond comprising a pavilion having a plurality of facets disposed from a girdle to a culet. A dome-shaped crown is disposed above the girdle. The girdle extends no further than a widest circumference of the dome-shaped crown and the pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown.

The dome-shaped crown formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an

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apex of the dome-shaped crown is a fundamental distinction between the claimed invention and the prior art of record.

The Diagrams for Faceting reference generally discloses a variety of cuts for gemstones. In particular, the Examiner references the Mogul cut on page 9 of the reference. The Mogul cut has at most four rows of crown facets cut at varying angles from a reference plane tangent to a flat tabletop of the crown.

The Diagrams for Faceting reference does not teach or suggest at least the feature of the dome-shaped crown formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. The number of rows of facets must be sufficient to yield the dome-shaped crown. The Mogul cut does not address the concerns of cutting facets in a dome-shaped crown. The facet cuts made in the Mogul design would not aid one skilled in the art in making such cuts. The facet cuts needed to maximize the light penetration and reflection and thereby bring out the desired brilliance and scintillation in a dome shape must be precise. The Diagrams for Faceting reference discloses at most four sets of facets from the girdle to the tabletop of the crown which is insufficient to create a curved contour in accordance with a dome shape as recited in claim 47.

Moreover, the facets in the Mogul design do not extend to the apex of the crown. The Mogul facets terminate prior to the apex leaving the crown with a flat tabletop. Indeed, the Mogul design from the Diagrams for Faceting reference has a flat tabletop similar to the prior art design shown in FIG. 1 of the Appellant's application. The desired brilliance and scintillation exhibited with the claimed dome shape simply

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cannot be achieved with a flat tabletop crown, see paragraphs [0005]-[0008] of the Appellant's application.

In contrast, Appellant's invention provides sufficient facets to form a curved contour into a dome shape, see FIG. 5. In one embodiment, the specification discusses cutting at least eleven rows of facets to achieve the curved contour into a dome shape, see paragraphs [00027]-[00029]. The curved contour is important to the invention in that it yields a fluid balance of light return from numerous angles. It is the totality and utility of these functional aspects of the dome-shaped crown that allows more light to be received and reflected by the diamond, thus providing greater brilliance and scintillation, see paragraph [00036].

Claim 47 is believed to patentably distinguish over the Diagrams for Faceting reference. Claims 48 and 54 are believed to be in condition for allowance as each is dependent from an allowable base claim.

G. Claims 41, 45, 46, and 49-51 are patentable over Diagrams for Faceting under 35 U.S.C. 103(a)

Appellant traverses the rejection of claims 41, 45, 46, and 49-51. As acknowledged by the Examiner, the Diagrams for Faceting reference does not disclose that (1) the plurality of facets of the pavilion are each cut to an angle of about 40.75 degrees with respect to the reference line which is tangential to the apex of the dome-shaped crown, as recited in claims 41 and 51; the polygon is a hexagon, as recited in claims 45 and 49; the apex of the dome-shaped crown has less surface area than each facet from the sets of facets, as recited in claim 45; the apex of the dome-shaped crown has less surface area than each facet

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from the sets of facets, as recited in claim 50. The Examiner states that these features are matters of design choice and would be obvious to one of ordinary skill in the art. Appellant disagrees. Each of these dependent claims provide additional features of the dome-shaped crown which allows more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation, see paragraph [00036]. Appellant submits that the Examiner is taking judicial notice by failing to produce any prior art reference that shows the obviousness of the features of claims 41, 45, 46, and 49-51.

More specifically, claim 44 depends from claim 40 and further recites that the dome-shaped crown is formed from at least five sets of facets with monotonically decreasing angles to form the curved contour in accordance with the dome shape.

Appellant generally disagrees with the Examiner that the Diagrams for Faceting reference discloses a dome-shaped crown, at least not one formed with a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown.

A fundamental aspect of the present invention is its dome-shaped crown. The dome-shaped crown is essential for receiving and reflecting more light by the gemstone to produce greater brilliance and scintillation, see paragraph [00036]. Claim 44 recites at least five sets of facets. The number of rows of facets must be sufficient to form a curved contour in accordance with a dome shape.

Appellant maintains that the Mogul design in the Diagrams for Faceting reference is not dome-shaped with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. The Diagrams for Faceting reference discloses at most four sets

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of facets from the girdle to the tabletop of the crown which is insufficient to create a curved contour in accordance with a dome shape as recited in claim 44. The additional sets of facets recited in claim 44, over and above what is shown in the Diagrams for Faceting reference, go toward forming the curved contour in accordance with its dome shape. The larger number of facets is essential to formation of the dome-shaped crown cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape. The dome-shape is functional to achieve the fluid balance of light return from numerous angles and does indeed produce a novel and non-obvious result, see paragraph [00029]. It is the totality and utility of these functional aspects of the dome-shaped crown that allows more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation, see paragraph [00036].

Accordingly, claim 44 is believed to patentably distinguish over the Diagrams for Faceting reference.

Claim 46 depends from claim 40 and further recites the apex of the crown as having less surface area than each facet from the sets of facets. The Diagrams for Faceting reference does not use an apex of a dome-shaped crown which has less surface area than each facet from the sets of facets. The top of the Mogul design in the Diagrams for Faceting reference is a flat tabletop with a surface area larger than the adjacent facets. The flat tabletop in the Diagrams for Faceting reference negates reading the prior art reference on the claimed dome-shaped crown because it clearly does not form a curved contour in accordance with a dome shape. The apex of the dome-shaped crown has less surface area than each facet from the sets of facets in order to create

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the dome-shape, which is not found in the Diagrams for Faceting reference.

Accordingly, claim 46 is believed to patentably distinguish over the Diagrams for Faceting reference.

Claim 50 depends from claim 47 and further recites the apex of the crown as having less surface area than each facet from the sets of facets. The Diagrams for Faceting reference does not use an apex of a dome-shaped crown which has less surface area than each facet from the sets of facets. The top of the gemstone in the Diagrams for Faceting reference is a flat tabletop with a surface area larger than the adjacent facets. The flat tabletop in the Diagrams for Faceting reference negates reading the prior art reference on the claimed dome-shaped crown because it clearly does not form a curved contour in accordance with a dome shape. The apex of the dome-shaped crown has less surface area than each facet from the sets of facets in order to create the dome-shape, which is not found in the Diagrams for Faceting reference.

Accordingly, claim 50 is believed to patentably distinguish over the Diagrams for Faceting reference.

In addition, claims 41, 45, 46, and 49-51 are believed to be in condition for allowance as each is dependent from an allowable base claim.

H. Claims 1, 3-5, 13-16, 23-25, and 55-56 are patentable over Diagrams for Faceting under 35 U.S.C. 103(a)

1. Claims 1 and 3-5

The Examiner rejects claims 1 and 3-5 under 35 U.S.C. 103(a) as being unpatentable over the Diagrams for Faceting reference. Appellant respectfully traverses the rejection and

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submits the following arguments in favor of reversal of the rejection and allowance of the claim.

Claim 1 recites a diamond comprising a pavilion having a plurality of facets disposed from a girdle to a culet. Each of the plurality of facets has a continuous flat surface extending from the girdle to the culet. An edge of a first adjoining facet contacts an edge of a second adjoining facet along a common radial boundary. A dome-shaped crown is disposed above the girdle. The girdle extends no further than a widest circumference of the dome-shaped crown. The pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from at least five sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. Each facet within the sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets. Each of the sets of facets has monotonically decreasing surface area from the girdle to the apex of the dome-shaped crown. The apex of the dome-shaped crown has less surface area than each facet from the sets of facets.

A fundamental aspect of the present invention is its dome-shaped crown. The dome-shaped crown is essential for receiving and reflecting more light by the diamond to produce greater brilliance and scintillation, see paragraph [00036]. Claim 1 recites at least five sets of facets (the specification discloses eleven sets of facets), see paragraph [00027]-[00029]. In any case, the number of rows of facets must be sufficient to form a curved contour in accordance with a dome shape. That is, the large number of rows of facets is necessary to yield the dome-shaped crown. In addition, the apex of the dome-shaped crown has

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less surface area than each facet from the sets of facets in order to form the dome shape capable of receiving and reflecting more light.

Appellant maintains that the Mogul design in the Diagrams for Faceting reference is not dome-shaped with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. The reference discloses at most four sets of facets from the girdle to the tabletop of the crown which is insufficient to create a curved contour in accordance with a dome shape as recited in claim 1. The additional sets of facets recited in claim 1, over and above what is shown in the Diagrams for Faceting reference, go toward forming the curved contour in accordance with its dome shape. The Diagrams for Faceting reference does not use an apex of a dome-shaped crown that has less surface area than each facet from the sets of facets. The top of the gemstone in the Diagrams for Faceting reference is a flat tabletop with a surface area larger than the adjacent facets. The flat tabletop in the Diagrams for Faceting reference negates reading the prior art reference on the claimed dome-shaped crown because it clearly does not form a curved contour in accordance with a dome shape.

The facets in the Mogul design do not extend to the apex of the crown. The Mogul facets terminate prior to the apex leaving the crown with a flat tabletop. Indeed, the Mogul design from the Diagrams for Faceting reference has a flat tabletop similar to the prior art design shown in FIG. 1 of the Appellant's application. The desired brilliance and scintillation exhibited with the claimed dome shape simply cannot be achieved with a

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flat tabletop crown, see paragraphs [0005]-[0008] of the Appellant's application.

Appellant further believes that the Mogul design in the Diagrams for Faceting reference does not show each facet within the first and second sets of facets as hexagonal in shape with opposing corners of the hexagon nested between adjacent facets. The facets in the Diagrams for Faceting reference are triangular, not hexagonal, and cannot be reasonably viewed as having opposing corners (plural) of the hexagon nested between adjacent facets (plural). The opposing corners of the hexagon being nested between adjacent facets can be seen in FIG. 5. The Diagrams for Faceting reference has triangular facets and therefore cannot have opposing corners of the hexagon. Moreover, the corners (plural) of the triangular facets are not nested between adjacent facets (plural), e.g., see bottom row of Mogul cut in the Diagrams for Faceting reference. Appellant submits this claimed feature cannot physically be achieved with the triangular facets in the Diagrams for Faceting reference.

The larger number of facets is essential to formation of the dome-shaped crown cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape. The apex of the dome-shaped crown has less surface area than each facet from the sets of facets in order to create the dome-shape. The dome-shape is functional to achieve the fluid balance of light return from numerous angles and does indeed produce a novel and non-obvious result, see paragraph [00029]. The hexagonal-shaped facets with opposing corners of the hexagon nested between adjacent facets add to the light angles and light return. It is the totality and utility of these functional aspects of the dome-shaped crown that allow more light to be received and reflected

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by the diamond, thus providing greater brilliance and scintillation, see paragraph [00036].

Appellant's invention as recited in claim 1 is believed to be significantly different from the Diagrams for Faceting reference. The Examiner acknowledges that the Diagrams for Faceting reference does not show all features of claim 1. Appellant believes the Examiner is taking judicial notice by failing to produce any prior art reference(s) that demonstrates how the differences between claim 1 and the cited reference would be obvious. Claim 1 recites sufficient facets and an apex which has less surface area than each facet from the sets of facets to form a curved contour into a dome shape, see also FIG. 5. In one embodiment, the specification discusses cutting at least eleven rows of facets to achieve the curved contour into a dome shape, see paragraphs [00027]-[00029]. Claim 1 further recites hexagon-shaped facets with opposing corners of the hexagon nested between adjacent facets. The Diagrams for Faceting reference simply does not have these features.

Accordingly, claim 1 is believed to patentably distinguish over the Diagrams for Faceting reference. Claims 3-5 are believed to be in condition for allowance as each is dependent from an allowable base claim.

2. Claims 13-16 and 55

The Examiner rejects claims 13-16 and 55 under 35 U.S.C. 103(a) as being unpatentable over the Diagrams for Faceting reference. Appellant respectfully traverses the rejection and submits the following arguments in favor of reversal of the rejection and allowance of the claim.

Claim 13 recites a cut gemstone comprising a pavilion extending from a girdle to a culet. The girdle extends no

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further than a widest circumference of the crown. The pavilion extends no further than a widest circumference of the girdle. A crown in the form of a symmetrical hemisphere is formed from at least five sets of facets between the girdle and an apex of the crown including a first set of facets disposed above the girdle and a second set of facets disposed between the first set of facets and an apex of the crown. The first set of facets is cut at a first angle with respect to a reference line which is tangential to the apex of the crown and the second set of facets is cut at a second angle with respect to the reference line which is less than the first angle. Each facet within the first and second sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets.

Appellant disagrees with the Examiner that the Diagrams for Faceting reference discloses a crown in the form of a symmetrical hemisphere formed from at least five sets of facets between the girdle and an apex of the crown. The gemstone shape in the Diagrams for Faceting reference cannot reasonably be viewed as a symmetrical hemisphere, and certainly is not formed from at least five sets of facets between the girdle and an apex of the crown. Moreover, the Diagrams for Faceting reference does not teach or suggest a gemstone wherein each facet within the first and second sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets.

A fundamental aspect of the present invention is its crown having the form of a symmetrical hemisphere. The symmetrical hemisphere crown is essential for receiving and reflecting more light by the gemstone to produce greater brilliance and scintillation, see paragraph [00036]. Claim 13 recites at least five sets of facets (the specification discloses eleven sets of

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facets), see paragraph [00027]-[00029]. In any case, the number of rows of facets must be sufficient to form a symmetrical hemisphere. A symmetrical hemisphere is a substantially rounded surface. The large number of rows of facets is necessary to yield the crown as a symmetrical hemisphere capable of receiving and reflecting more light.

Appellant maintains that the Mogul design in the Diagrams for Faceting reference is not a symmetrical hemisphere. The cited reference discloses at most four sets of facets from the girdle to the tabletop of the crown which is insufficient to create a symmetrical hemisphere, as recited in claim 13. The additional sets of facets recited in claim 13, over and above what is shown in the Diagrams for Faceting reference, go toward forming the symmetrical hemisphere. The flat tabletop in the Diagrams for Faceting reference negates reading the prior art reference on the claim because it clearly does not form a symmetrical hemisphere.

The facets in the Mogul design do not extend to the apex of the crown. The Mogul facets terminate prior to the apex leaving the crown with a flat tabletop. Indeed, the Mogul design from the Diagrams for Faceting reference has a flat tabletop similar to the prior art design shown in FIG. 1 of the Appellant's application. The desired brilliance and scintillation exhibited with the claimed symmetrical hemisphere simply cannot be achieved with a flat tabletop crown, see paragraphs [0005]-[0008] of the Appellant's application.

Appellant further believes that the Mogul design in the Diagrams for Faceting reference does not show each facet within the first and second sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets.

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The facets in the cited reference are triangular, not hexagonal, and cannot be reasonably viewed as having opposing corners (plural) of the hexagon nested between adjacent facets (plural). The opposing corners of the hexagon being nested between adjacent facets can be seen in FIG. 5. The Diagrams for Faceting reference has triangular facets and therefore cannot have opposing corners of the hexagon. Moreover, the corners (plural) of the triangular facets are not nested between adjacent facets (plural), e.g., see bottom row of Mogul cut in the Diagrams for Faceting reference. Appellant submits this claimed feature cannot physically be achieved with the triangular facets in the Diagrams for Faceting reference.

The larger number of facets is essential to formation of the crown as a symmetrical hemisphere. The symmetrical hemisphere is functional to achieve the fluid balance of light return from numerous angles and does indeed produce a novel and non-obvious result, see paragraph [00029]. The hexagon-shaped facets with opposing corners of the hexagon nested between adjacent facets add to the light angles and light return. It is the totality and utility of these functional aspects of the symmetrical hemisphere crown that allow more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation, see paragraph [00036].

Appellant's invention as recited in claim 13 is believed to be significantly different from the Diagrams for Faceting reference. The Examiner acknowledges that the cited reference does not show all features of claim 13. Appellant believes the Examiner is taking judicial notice by failing to produce any prior art reference that demonstrates how the differences between claim 13 and the Diagrams for Faceting reference would be

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obvious. Claim 13 recites sufficient facets to form a symmetrical hemisphere, see also FIG. 5. In one embodiment, the specification discusses cutting at least eleven rows of facets to achieve the symmetrical hemisphere, see paragraphs [00027]-[00029]. Claim 13 further recites hexagon-shaped facets with opposing corners of the hexagon nested between adjacent facets. The Diagrams for Faceting reference simply does not have these features.

Accordingly, claim 13 is believed to patentably distinguish over the Diagrams for Faceting reference. Claims 14-16 are believed to be in condition for allowance as each is dependent from an allowable base claim.

Claim 55 depends from claim 13 and further recites the apex of the crown as having less surface area than each facet from the sets of facets. The Diagrams for Faceting reference does not have an apex of the crown which has less surface area than each facet from the sets of facets. The top of the Mogul design in the Diagrams for Faceting reference is a flat tabletop with a surface area larger than the adjacent facets. The flat tabletop in the cited reference negates reading the prior art reference on the claim because it clearly does not form a curved contour in accordance with a symmetrical hemisphere. The apex of the crown has less surface area than each facet from the sets of facets in order to create the symmetrical hemisphere, which is not found in the Diagrams for Faceting reference.

Accordingly, claim 55 is believed to patentably distinguish over the Diagrams for Faceting reference.

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3. Claims 23-25 and 56

The Examiner rejects claims 23-25 and 56 under 35 U.S.C. 103(a) as being unpatentable over the Diagrams for Faceting reference. Appellant respectfully traverses the rejection and submits the following arguments in favor of reversal of the rejection and allowance of the claim.

Claim 23 recites a cut gemstone comprising a pavilion having a plurality of facets disposed from a girdle to a culet. A dome-shaped crown is disposed above the girdle. The girdle extends no further than a widest circumference of the dome-shaped crown. The pavilion extends no further than a widest circumference of the girdle. The dome-shaped crown is formed from at least five sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. Each facet within the sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets.

Appellant generally disagrees with the Examiner that the Diagrams for Faceting reference discloses a dome-shaped crown, at least not one formed with a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. Moreover, the Diagrams for Faceting reference does not teach or suggest a gemstone wherein each facet within the first and second sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets.

A fundamental aspect of the present invention is its dome-shaped crown. The dome-shaped crown is essential for receiving and reflecting more light by the gemstone to produce greater brilliance and scintillation, see paragraph [00036]. Claim 23 recites at least five sets of facets. In any case, the number of

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rows of facets must be sufficient to form a curved contour in accordance with a dome shape. The large number of rows of facets is necessary to yield the dome-shaped crown capable of receiving and reflecting more light.

Appellant maintains that the Mogul design in the Diagrams for Faceting reference is not dome-shaped with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown. The Diagrams for Faceting reference discloses at most four sets of facets from the girdle to the tabletop of the crown which is insufficient to create a curved contour in accordance with a dome shape as recited in claim 23. The additional sets of facets recited in claim 23, over and above what is shown in the Diagrams for Faceting reference, go toward forming the curved contour in accordance with its dome shape. The flat tabletop in the cited reference negates reading the prior art reference on the claimed dome-shaped crown because it clearly does not form a curved contour in accordance with a dome shape.

Appellant further believes that the Mogul design in the Diagrams for Faceting reference does not show each facet within the first and second sets of facets is hexagonal in shape with opposing corners of the hexagon nested between adjacent facets. The facets in the Diagrams for Faceting reference are triangular, not hexagonal, and cannot be reasonably viewed as having opposing corners (plural) of the hexagon nested between adjacent facets (plural). The opposing corners of the hexagon being nested between adjacent facets can be seen in FIG. 5. The Diagrams for Faceting reference has triangular facets and therefore cannot have opposing corners of the hexagon. Moreover, the corners (plural) of the triangular facets are not

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nested between adjacent facets (plural), e.g., see bottom row of Mogul cut in the Diagrams for Faceting reference. Appellant submits this claimed feature cannot physically be achieved with the triangular facets in the Diagrams for Faceting reference.

The facets in the Mogul design do not extend to the apex of the crown. The Mogul facets terminate prior to the apex leaving the crown with a flat tabletop. Indeed, the Mogul design from the Diagrams for Faceting reference has a flat tabletop similar to the prior art design shown in FIG. 1 of the Appellant's application. The desired brilliance and scintillation exhibited with the claimed dome shape simply cannot be achieved with a flat tabletop crown, see paragraphs [0005]-[0008] of the Appellant's application.

The larger number of facets is essential to formation of the dome-shaped crown cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape. The dome-shape is functional to achieve the fluid balance of light return from numerous angles and does indeed produce a novel and non-obvious result, see paragraph [00029]. The hexagon-shaped facets with opposing corners of the hexagon nested between adjacent facets add to the light angles and light return. It is the totality and utility of these functional aspects of the dome-shaped crown that allows more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation, see paragraph [00036].

Appellant's invention as recited in claim 23 is believed to be significantly different than the Diagrams for Faceting reference. The Examiner acknowledges that the Diagrams for Faceting reference does not show all features of claim 23. Appellant believes the Examiner is taking judicial notice by

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failing to produce any prior art reference that demonstrates how the differences between claim 23 and the Diagrams for Faceting reference would be obvious. Claim 23 recites sufficient facets and an apex which has less surface area than each facet from the sets of facets to form a curved contour into a dome shape, see also FIG. 5. In one embodiment, the specification discusses cutting at least eleven rows of facets to achieve the curved contour into a dome shape, see paragraphs [00027]-[00029]. Claim 23 further recites hexagon-shaped facets with opposing corners of the hexagon nested between adjacent facets. The Diagrams for Faceting reference simply does not have these features.

Accordingly, claim 23 is believed to patentably distinguish over the Diagrams for Faceting reference. Claims 24-25 are believed to be in condition for allowance as each is dependent from an allowable base claim.

Claim 56 depends from claim 23 and further recites the apex of the crown as having less surface area than each facet from the sets of facets. The Diagrams for Faceting reference does not have an apex of the dome-shaped crown which has less surface area than each facet from the sets of facets. The top of the gemstone in the Diagrams for Faceting reference is a flat tabletop with a surface area larger than the adjacent facets. The flat tabletop in the Diagrams for Faceting reference negates reading the prior art reference on the claimed dome-shaped crown because it clearly does not form a curved contour in accordance with a dome shape. The apex of the dome-shaped crown has less surface area than each facet from the sets of facets in order to create the dome-shape, which is not found in the Diagrams for Faceting reference.

Accordingly, claim 56 is believed to patentably distinguish over the Diagrams for Faceting reference.

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I. Claims 7-8, 10, 18-19, 21, 27-28, 30, 42-43, and 52-53 are patentable over the Diagrams for Faceting reference

Appellant traverses the rejection of claims 7-8, 10, 18-19, 21, 27-28, 30, 42-43, and 52-53. As acknowledged by the Examiner, the Diagrams for Faceting reference does not disclose the features of claims 7-8, 10, 18-19, 21, 27-28, 30, 42-43, and 52-53. Appellant disagrees. Each of these dependent claims provide additional features of the dome-shaped crown which allows more light to be received and reflected by the gemstone, thus providing greater brilliance and scintillation, see paragraph [00036]. Appellant submits that the Examiner is taking judicial notice by failing to produce any prior art reference that shows the obviousness of the features of claims 7-8, 10, 18-19, 21, 27-28, 30, 42-43, and 52-53.

In addition, claims 7-8, 10, 18-19, 21, 27-28, 30, 42-43, and 52-53 are believed to be in condition for allowance as each is dependent from an allowable base claim.

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J. Conclusion

When properly considered in view of the applicable legal standard, claims 1, 3-5, 7, 8, 10, 13-16, 18-19, 21, 23-25, 27, 28, and 40-56 are believed to be patentable in view of the prior art of record. Appellant requests reversal of the final rejection and allowance of the subject patent application.

Respectfully submitted,
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VIII.. CLAIMS APPENDIX

1. (Previously presented) A diamond, comprising:

a pavilion having a plurality of facets disposed from a girdle to a culet, each of the plurality of facets having a continuous flat surface extending from the girdle to the culet, wherein an edge of a first adjoining facet contacts an edge of a second adjoining facet along a common radial boundary; and

a dome-shaped crown disposed above the girdle, wherein the girdle extends no further than a widest circumference of the dome-shaped crown and the pavilion extends no further than a widest circumference of the girdle, the dome-shaped crown formed from at least five sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown, each facet within the sets of facets being hexagonal in shape with opposing corners of the hexagon nested between adjacent facets, each of the sets of facets having monotonically decreasing surface area from the girdle to the apex of the dome-shaped crown, the apex of the dome-shaped crown having less surface area than each facet from the sets of facets.

2. (Cancelled)

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3. (Previously presented) The diamond of claim 1, wherein the plurality of facets of the pavilion are each cut to an angle of about 40.75 degrees.

4. (Original) The diamond of claim 1, wherein the plurality of facets of the pavilion totals at least sixteen in number.

5. (Original) The diamond of claim 1, wherein the pavilion is substantially conical in shape.

6. (Cancelled)

7. (Previously presented) The diamond of claim 1, further including:

a first set of facets disposed in the dome-shaped crown adjacent to the girdle and cut about 90 degrees with respect to a reference line which is tangential to the apex of the dome-shaped crown; and

a second set of facets disposed in the dome-shaped crown adjacent to the first set of facets and cut about 75 degrees with respect to the reference line.

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8. (Previously presented) The diamond of claim 7, further including:

a third set of facets disposed in the dome-shaped crown adjacent to the second set of facets and cut about 65 degrees with respect to the reference line;

a fourth set of facets disposed in the dome-shaped crown adjacent to the third set of facets and cut about 55 degrees with respect to the reference line; and

a fifth set of facets disposed in the dome-shaped crown adjacent to the fourth set of facets and cut about 45 degrees with respect to the reference line.

9. (Cancelled)

10. (Previously presented) The diamond of claim 7, further including:

a third set of facets disposed in the dome-shaped crown adjacent to the second set of facets and cut about 65 degrees with respect to the reference line;

a fourth set of facets disposed in the dome-shaped crown adjacent to the third set of facets and cut about 56 degrees with respect to the reference line; and

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a fifth set of facets disposed in the dome-shaped crown adjacent to the fourth set of facets and cut about 46 degrees with respect to the reference line.

11. (Cancelled)

12. (Cancelled)

13. (Previously presented) A cut gemstone, comprising:

a pavilion extending from a girdle to a culet, wherein the girdle extends no further than a widest circumference of the crown and the pavilion extends no further than a widest circumference of the girdle; and

a crown in the form of a symmetrical hemisphere formed from at least five sets of facets between the girdle and an apex of the crown including a first set of facets disposed above the girdle and a second set of facets disposed between the first set of facets and an apex of the crown, wherein the first set of facets is cut at a first angle with respect to a reference line which is tangential to the apex of the crown and the second set of facets is cut at a second angle with respect to the reference line which is less than the first angle, each facet within the first and second sets of facets being hexagonal in shape with

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opposing corners of the hexagon nested between adjacent facets.

14. (Original) The cut gemstone of claim 13, wherein each of the plurality of facets of the pavilion are symmetrically disposed and extend continuous from the girdle to the culet.

15. (Original) The cut gemstone of claim 14 wherein each of the plurality of facets of the pavilion are cut to an angle of about 40.75 degrees with respect to the reference line.

16. (Original) The cut gemstone of claim 13, wherein the plurality of facets of the pavilion totals at least sixteen in number.

17. (Cancelled)

18. (Original) The cut gemstone of claim 13, wherein the first set of facets is disposed in the crown adjacent to the girdle and cut about 90 degrees with respect to the reference line and the second set of facets is disposed in the crown adjacent to the first set of facets and cut about 75 degrees with respect to the reference line.

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19. (Previously presented) The cut gemstone of claim 18,
further including:

a third set of facets disposed in the crown adjacent to the
second set of facets and cut about 65 degrees with respect to the
reference line;

a fourth set of facets disposed in the crown adjacent to the
third set of facets and cut about 55 degrees with respect to the
reference line; and

a fifth set of facets disposed in the crown adjacent to the
fourth set of facets and cut about 45 degrees with respect to the
reference line.

20. (Cancelled)

21. (Previously presented) The cut gemstone of claim 13,
further including:

a third set of facets disposed in the crown adjacent to the
second set of facets and cut about 65 degrees with respect to the
reference line;

a fourth set of facets disposed in the crown adjacent to the
third set of facets and cut about 56 degrees with respect to the
reference line; and

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a fifth set of facets disposed in the crown adjacent to the fourth set of facets and cut about 46 degrees with respect to the reference line.

22. (Cancelled)

23. (Previously presented) A cut gemstone, comprising:

a pavilion having a plurality of facets disposed from a girdle to a culet; and

a dome-shaped crown disposed above the girdle, wherein the girdle extends no further than a widest circumference of the dome-shaped crown and the pavilion extends no further than a widest circumference of the girdle, the dome-shaped crown formed from at least five sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown, each facet within the sets of facets being hexagonal in shape with opposing corners of the hexagon nested between adjacent facets.

24. (Original) The cut gemstone of claim 23, wherein each of the plurality of facets of the pavilion are symmetrically disposed and extend continuous from the girdle to the culet.

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25. (Original) The cut gemstone of claim 24, wherein the plurality of facets of the pavilion are each cut to an angle of about 40.75 degrees with respect to the reference line which is tangential to the apex of the dome-shaped crown.

26. (Cancelled)

27. (Previously presented) The cut gemstone of claim 23, further including:

a first set of facets disposed in the dome-shaped crown adjacent to the girdle and cut about 90 degrees with respect to a reference line which is tangential to the apex of the dome-shaped crown; and

a second set of facets disposed in the dome-shaped crown adjacent to the first set of facets and cut about 75 degrees with respect to the reference line.

28. (Previously presented) The cut gemstone of claim 27, further including:

a third set of facets disposed in the dome-shaped crown adjacent to the second set of facets and cut about 65 degrees with respect to the reference line;

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a fourth set of facets disposed in the dome-shaped crown adjacent to the third set of facets and cut about 55 degrees with respect to the reference line; and

a fifth set of facets disposed in the dome-shaped crown adjacent to the fourth set of facets and cut about 45 degrees with respect to the reference line.

29-39. (Cancelled)

40. (Previously presented) A cut gemstone, comprising:

a pavilion having a plurality of facets disposed from a girdle to a culet; and

a dome-shaped crown disposed above the girdle, wherein the girdle extends no further than a widest circumference of the dome-shaped crown and the pavilion extends no further than a widest circumference of the girdle, the dome-shaped crown formed from a plurality of sets of facets cut with monotonically decreasing angles to form a curved contour in accordance with a dome shape from the girdle to an apex of the dome-shaped crown, each facet within the sets of facets being polygonal in shape with opposing corners of the polygon nested between adjacent facets.

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41. (Previously presented) The cut gemstone of claim 40,
wherein the plurality of facets of the pavilion are each cut to